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INVESTIGATING THE EFFECTS AND MECHANISMS OF A BRIEF SAVORING-
BASED INTERVENTION IN PARTNERED INDIVIDUALS

BY

BINGHUANG A. WANG

BA, Vassar College 2012

THESIS

Accepted in partial fulfillment of the requirements for
the degree of Master of Science in Psychology
in the Graduate School of
Binghamton University
State University of New York
2018

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Abstract

Due to numerous barriers to mental health care access, there exists an extensive need for brief cost-effective interventions for couples. Savoring, which invites individuals to prolong and extend the positive aspect of their experiences, is a promising intervention candidate. Research on savoring has established savoring-based interventions to be efficacious at producing positive intra and interpersonal outcomes. The current investigation expands upon existing savoring research by examining the effects of savoring on an adult population in committed romantic relationships. We expect savoring to be better than control at improving intra and interpersonal outcomes. Furthermore, we aim to investigate intrapersonal factors as potential mechanisms of the effect of savoring on interpersonal outcomes. Results indicate savoring to be better than control at improving some intra and interpersonal outcomes. The results also support a double mediation model with intrapersonal variables mediating the association between savoring and interpersonal outcomes. Clinical and research implications are discussed.

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Introduction

Prior research has indicated that being a part of a functional romantic relationship is a robust predictor of intrapersonal happiness, as well as psychological and physical well-being (Cohen, Underwood & Gottlieb, 2000; Patrick, Canevello & Lonsbary, 2007; Simon, 2002). A dysfunctional romantic relationship, on the other hand, is a predictor of worse psychological and physical outcomes (e.g., Baumeister & Leary, 1995; Liu & Reczek, 2012; Robles, Slatcher, Trombello & McGinn, 2014; Whisman, 2007). The proportion of couples in dysfunctional relationships is notable. Studies have found that between 18% and 30% of individuals report they are currently in a dissatisfactory romantic relationship (Yucel & Gassanov, 2010; Whisman, Snyder & Beach, 2009). Relationship difficulties are especially salient for individuals with an anxious attachment style for they experience higher levels of relationship dysfunction such as more intense relationship conflicts (e.g., Mikulincer & Shaver, 2003).

The unmet need for couples' mental health services is alarming. Out of the 573,280 mental health providers registered with the U.S. Bureau of Labor Statistics in 2016, only 36,960 (or 6%) are licensed marriage and family therapists (BLS, 2016). While no data exists for what percentage of the remaining mental health providers offer couple-based services, the reality is that the demand far surpasses the supply. The rising cost of mental health care, the time commitment of traditional psychotherapy, the lack of mental health providers who accept insurance, and the overall shortage of providers in

general are some of the primary barriers to accessing mental health resources for couples. Current evidence-based therapeutic modalities, such as Behavioral Couple Therapy (Epstein & Baucom, 2002; Jacobson & Christensen, 1998; Jacobson & Margolin, 1979) work for about two-thirds of the couples. But the percentage of distressed couples who access this type of resource is incredibly low. We see a similar trend in prevention, education, and skill building programs (e.g., PREP; Markman, Stanley & Blumberg, 2001) for couples (Halford, O'Donnell, Lizzio, & Wilson, 2006). These services are not being utilized by the couples who need them the most. In the current climate of shortage of services, the utility of brief, affordable, transdiagnostic interventions for couples is becoming ever more apparent. It is our belief that a savoring based intervention first developed by Borelli, McMakin, & Sbarra, (2010) fulfills these criteria and can be adapted to help address the shortage of intervention for couples.

Savoring

Savoring is the process of attending to, prolonging, and enhancing the positive emotions attached to everyday experiences (Bryant & Veroff, 2007). Savoring positive memories has been shown to be an effective intervention at improving intrapersonal factors such as positive affect, life satisfaction, happiness (Bryant, 2003; Fordyce, 1988; Jose et al., 2012; Smith & Bryant 2016; Quoidbach, Wood, & Hansenne, 2009) as well as reducing negative affect and depression (Hurley & Kwon, 2012; McMakin, Siegle, & Shirk, 2011). Savoring is something that occurs naturally for most individuals. There are of course individual differences in the frequency and intensity of each person's savoring experience. This baseline level of savoring capacity is construed by Bryant & Veroff (2007) as *savoring beliefs* or "people's subjective perceptions of their personal ability to

enjoy positive experiences” (p. 40). Bryant (2003) created the savoring beliefs inventory (SBI) to measure this construct. He found savoring beliefs to be positively correlated with traits such as optimism and happiness, as well as negatively correlated with traits such as hopelessness and depression.

Research has indicated that the most frequently savored memories are those involving relationships (Bryant et al., 2005). Although relatively unexamined, preliminary evidence suggests that savoring memories associated with a close relationship, *relational savoring intervention*, has benefits above and beyond savoring personal memories, *personal savoring intervention*. Relational savoring is defined as reflecting on a positive experience between two emotionally connected people (Borelli et al., 2014). Personal savoring, on the other hand, is defined as reflecting on an individual, private positive experience. Research on spouses of deployed military personnel and individuals in long distance relationships have found relational savoring to be associated with significantly higher increase in positive affect and feelings of closeness than both personal savoring and control (Borelli, Rasmussen, Burkhart & Sbarra, 2015, Burkhart, Borelli, Rasmussen & Sbarra, 2015). **Mindfulness**

Mindfulness is a related construct to savoring. Brown & Ryan (2003) defined mindfulness as an enhanced attention to and awareness of current experience or present reality. Meta analyses of RCTs have demonstrate its effectiveness as an intervention at reducing stress, depression, distress, and at improving quality of life (Franca, 2015; Khoury, Sharma, Rush & Fournier, 2015). Brown & Ryan (2003) found both trait and state mindfulness to be correlated with positive intrapersonal outcomes such as improved positive affect and well-being. By definition, savoring necessitates a component of

mindfulness. Without mindfully attending to the positive experience, the process would merely be enjoyment (Smith, Harrison & Bryant, 2014). However, unlike mindfulness, which does not restrict the flow of external and internal stimuli, savoring focuses exclusively on the positively valenced stimuli (Bryant & Veroff, 2007). Some empirical research has shown evidence that savoring and mindfulness are unique in their impact on positive emotions (Kiken, Lundberg, & Fredrickson, 2017). Therefore, mindfulness could be used as a meaningful active control when examining the unique effects of savoring on both intra and interpersonal outcome variables above and beyond the effects of mindfulness.

Positive Affect & Optimism

While the association between savoring and positive affect is well established empirically (e.g., Bryant et al., 2005; Gentzler, Morey, Palmer, & Yi, 2013; Quoidbach, Wood, & Hansenne, 2009), the association between savoring and optimism has received less attention. In his effort to establish convergent validity for the Savoring Beliefs Inventory, Bryant (2003) found trait savoring to be significantly correlated with dispositional optimism. Nevertheless, to our knowledge no previous research has investigated the effect of savoring on state optimism directly. Nor has there been any research discriminating the impact of savoring on positive affect and optimism. Peterson (2000) defined optimism as a “global expectation that good things will be plentiful in the future...” (p. 48). It stands to reason that savoring, which directs the mind to good things that has happened in the past, could positively impact our expectations for future positive experiences.

Based on Fredrickson's (2001) Broaden-and-Build theory of positive emotions, positive affect broadens our awareness and encourages us to explore the world, as well as build resources that could have lasting benefits for our well-being. Studies on attentional bias have demonstrated an association between broadened attention and optimism (Basso, Schefft, Ris & Dember, 1996; Derryberry & Tucker, 1994). Therefore, positive affect might act as a more proximal variable to savoring than optimism, as savoring increases positive affect, positive affect in turn impacts optimism.

Relationship Functioning & Attachment Anxiety

As outlined in a previous section, the impact of savoring has been measured mostly in terms of intrapersonal outcomes. Bryant and Veroff (2007) proposed that savoring has the ability to impact interpersonal factors by enhancing a sense of connection with other people. Moreover, some emerging evidence does suggest that relational savoring has a positive impact on interpersonal outcomes such as feelings of closeness and relationship satisfaction (Burkhart et al., 2015). Conceptually, interpersonal outcomes would be more downstream variables than intrapersonal outcomes. As savoring impacts positive affect and optimism, the improved mood and optimism would in turn impact perceptions of relationship functioning and attachment anxiety. A more positive global outlook on life should in theory improve an individual's perception of his/her romantic relationship. We propose that savoring, especially relational savoring, would have a positive indirect impact on an individual's perception of relationship functioning (measured as relationship distress and attachment anxiety to his/her romantic partner) through the direct impact of savoring on positive affect and optimism.

Current Investigation

The purpose of this investigation is to determine the potential of an established savoring-based intervention as a brief, affordable, transdiagnostic, couple's intervention. The efficacy of this savoring intervention is examined using a sample of partnered college students. This would extend the existing savoring literature to include the potential impact of savoring on interpersonal variables. This investigation also plans to discriminate between the effects of savoring romantic relationship events as compared to savoring intrapersonal events. Finally, we hope to explore preliminary evidence on the mechanisms of change for savoring by identifying potential mediators of the savoring process. Our primary hypotheses are that savoring intervention would lead to better intra and interpersonal outcomes than mindfulness control; and that relational savoring would lead to better interpersonal outcomes than personal savoring. Our secondary hypothesis is that the association between savoring and interpersonal outcomes will be mediated by intrapersonal processes.

Methods

Participants

A college sample of adults currently in a committed romantic relationship, defined as a romantic relationship lasting 3 months old or more, were recruited to participate via the SONA research participation system in a mid-sized university in north eastern United States. Romantic relationships in the current college population can take on many different forms such as: “talking” “dating” “hooking ups” “in a relationship” (Fielder, Walsh, Jennifer, Carey, & Carey, 2014; Vrangalova, 2015). In order to optimize data collection and avoid confounds we set the minimum committed romantic relationship length to 3 months (e.g. Johnson, & Rusbult, 1989). The mean age of the participant was 19.34, $SD_{age} = 1.23$. A majority (63.3%) of the sample was Caucasian, 17.3% identified as Asian / Pacific Islander, 8% identified as Hispanic, 5.3% identified as Black or African American and 5.3% identified with multiple ethnicities. The mean relationship length was 15.3 months, $SD_{length} = 13.39$ months. The SONA listing advertised the purpose of this study as the examination of the effect of memory in romantic relationships. Participants were instructed to arrive at our lab without their partner. A total of 150 (50% male, 50% female) adults participated in the study.

Procedure

Upon arriving at our laboratory, the participants completed informed consent followed by baseline self-report assessments which included background information,

their affect, optimism as well as their relationship functioning and attachment anxiety. This portion of the experiment took approximately 25 minutes. Our laboratory was secured during the entire experiment such that only the participant and a trained research assistant (RA) were present. All assessments were done using Survey Monkey, a secure internet-based data collection platform. After assessments were completed, stratified random assignment was used to ensure that 25 males and 25 females were randomly selected into each of the three experimental conditions (control, personal savoring, relationship savoring). The RA then guided the participants through their assigned intervention condition. The intervention tasks each took approximately 10 minutes. The participants then completed post-task assessments of their affect, optimism, relationship functioning, and attachment anxiety. The post-task assessment took approximately 15 minutes. The participants were debriefed and compensated with 1 research participation credit via the SONA system, a secure online program used for participant recruitment.

Measures

Savoring beliefs. The Savoring Beliefs Inventory (SBI; Bryant, 2003) contains 24 seven-point Likert scale items (Ranging from *1 = strongly disagree*, to *7 = strongly agree*). The SBI assesses an individual's beliefs about his/her capacity to savor positive outcomes (e.g., "*I can make myself feel good by remembering pleasant events from my past, I find it easy to enjoy myself when I want to.*") Psychometric properties of this measure are well established. Cronbach's α for our sample at pre-intervention was .93.

Emotional state. The Positive Affect Negative Affect Schedule (PANAS; Watson et al., 1988) contains 20 five-point Likert scale items (ranging from *1 = very slightly or not at all*, to *5 = extremely*). Participants were asked to rate the extent to which

they experienced 20 emotions at that given moment (e.g., *Jittery, Proud, Sad*). Ten of the 20 items assessed for positive affect (PA) and the other 10 assessed for negative affect (NA). Psychometric properties of this measure are well established. Cronbach's α for our sample was .89 for PA at pre and .92 at post; .80 for NA at pre and .86 at post.

Optimism. The Revised Life Orientation Test (LOT-R: Scheier, Carver & Bridges, 1994) contains six five-point Likert scale items (ranging from 0 = *strongly disagree*, to 4 = *strongly agree*). Participants were asked to rate the extent to which they agree with each statement. Psychometric properties of this measure are well established. Cronbach's α for our sample was .82 for at pre and .85 at post.

Relationship functioning. The Marital Satisfaction Inventory – Brief Form (MSI-B: Whisman, Snyder & Beach, 2009) contains 10 items (true, false). The MSI-B assesses for the presence or absence of clinically significant relationship distress. Items are counterbalanced such that true indicates the scored direction for five items whereas false indicates the scored direction for the remaining 5 items. Psychometric properties of this measure are well established. Cronbach's α for our sample was .63 at pre and .71 at post.

Attachment anxiety. The Experiences in Close Relationships – Revised (ECR-R: Fraley, Heffernan, Vicary, & Brumbaugh, 2011) contains nine seven-point Likert scale items (ranging from 1 = *strongly disagree*, to 7 = *strongly agree*). Three of the nine items assess for attachment anxiety and the other six assess for attachment avoidance. Psychometric properties of this measure are well established. Cronbach's α for our sample was .87 for attachment anxiety at pre and .84 at post.

Interventions. Participants were randomly assigned to one of three conditions (personal savoring, relational savoring, neutral/mindfulness control). In all conditions, a trained RA read structured prompts and allowed the participant to respond and reflect in turn on each prompt for one minute.

We adapted the savoring intervention (personal savoring and relational savoring) from previous work by Borelli and colleagues (2015, 2014, 2010). Both conditions are designed to evoke a positive emotional response. The sole difference between the two conditions is that the relational savoring condition would activate relationship content related to a specific positive memory in the participant's current romantic relationship. Personal savoring, on the other hand, would be limited to a private positive emotional experience without the inclusion of any relationship salient component. Given that relational content is frequently the subject of savoring (Bryant et al., 2005) and given emerging evidence (Borelli et al., 2015, Burkhart et al., 2015), we hypothesize that relational savoring might be more efficacious at evoking positive affect and improving perception of their romantic relationship than personal savoring. However, we expect participants in both savoring conditions to report higher positive affect and better relationship functioning than the control condition. We developed the control condition from the mindfulness literature. We needed a control that would allow our participants to access and attend to a memory to the same extent as our savoring tasks but without directly accessing the positive affect. Thus, a neutrally valenced memory involving a mundane daily task (toothbrushing) was selected (see Appendix A). The prompts for the control condition were altered to accommodate the mundane task but remained largely identical to that of the savoring interventions.

In the personal savoring condition, the participants were given prompts to come up with a few positive personal memories (see Appendix A). In the relational savoring condition, the participants were given prompts to think of a few positive relational memories involving their current romantic partner (see Appendix A). The RA then asked the participants to rate each memory based on vividness (*How well do you remember this memory*) and positivity (*How positive was this memory*) on a five-point Likert scale (*1 = Not at all to 5 = Extremely*). The RA would select the memory that fits the best in terms of vividness and positivity. Once a single memory was selected, the participants are asked to focus on that memory while thinking about and answering a series of questions (e.g., *What were you wearing? What was the weather like? What were you feeling?*). The last prompt asks the participants to reflect the event and all associated thoughts for 2 minutes (see Appendix A).

A team of six RAs received eight hours of training in preparation for proctoring this experiment. After being trained on the experimental protocol, the RAs practiced the protocol using the PI as a mock participant. The RAs then were expected to be observed by the PI while administering the protocol on another member of the research team. The PI also carried out bi-weekly research team meetings to ensure fidelity and to address any unforeseen issues.

Data Analysis Plan

To ensure that randomization of the participants was successful, we performed multiple one-way ANOVAs to determine any pre-intervention differences in our central variables between all three intervention conditions. To examine the association among all central variables at both pre- and post-intervention, we computed bivariate correlations.

To test our primary hypothesis, we conducted mixed-model repeated measures ANOVAs examining both the main effect of intervention conditions as well as the interaction effect between intervention conditions (personal savoring, relational savoring, control) and time (pre, post) on positive affect, optimism, relationship distress, and attachment anxiety. Mediations analyses were used to explore potential mechanisms of change for the savoring process. Mediation relationships will be evaluated using hierarchical linear regressions via the PROCESS macro in SPSS using bootstrapped point estimation at 5000 iterations (Hayes, 2012). In line with current research practices for mediation analyses (Hayes, 2009; Zhao, Lynch, & Chen, 2010), we tested for indirect effects even in the absence of direct effects.

Results

Means and standard deviations for all central study variables are displayed in Table 1 by intervention conditions. Skewness for all variables ranged from -.52 to 1.57, kurtosis ranged from -.82 to 2.25; however, the magnitude of these deviations did not warrant transformation of the variables (≤ 5 ; Kline, 2016). Prior to data analysis, we conducted series of one-way ANOVAs to determine if the pre-intervention central variables: savoring beliefs, positive affect, optimism, relationship distress, and attachment anxiety, differed by intervention condition. We found no significant differences. Table 2 reports Pearson's r for all pre- and post-intervention correlations; r 's ranged from -.406 to .834. All correlations were in the expected direction.

As a preliminary analysis, we conducted four mixed model ANOVAs comparing the effect of intervention conditions (personal savoring, relational savoring, control) x time (pre, post) on positive affect, optimism, relationship distress, and attachment anxiety ratings before and after the intervention (see Table 3). We found a significant interaction of condition x time for positive affect, $F(2, 147) = 11.83, p < .001$. We performed a Bonferroni post hoc analysis and discovered a significant difference between personal savoring and control condition, $p < .01$. Individuals in the personal savoring group reported higher post-intervention positive affect ($M = 3.39$) than the control condition ($M = 2.59$) after controlling for pre-intervention positive affect. We found no significant differences for the other three central variables. There were also no significant

differences between the personal savoring and the relational savoring condition. As a result, we collapsed them into a single “savoring” condition to increase the power of our subsequent analyses.

To test our primary hypotheses, we conducted four mixed model ANOVAs comparing the effect of collapsed intervention conditions (savoring, control) x time (pre, post) on our central variables before and after the intervention (see Table 4). Since savoring is a naturally occurring process, individual differences in baseline levels of savoring abilities could confound our results. The SBI measures individual’s self-reported capacity for savoring (Bryan, 2013). Bivariate correlations indicate that SBI is significantly correlated with all central study variables (See table 2). As a result, for these four analyses we entered SBI as a covariate to control for its effect on the central variables.

There was a significant interaction effect of intervention conditions x time on positive affect ratings, $F(1,147) = 20.98, p < .001, \eta^2 = .125$. Savoring condition reported higher post-intervention positive affect ($M = 3.35$) than control condition ($M = 2.59$). In addition, we found a significant interaction effect of intervention conditions x time on relationship distress ratings, $F(1,147) = 4.05, p = .046, \eta^2 = .03$. Savoring condition reported lower post-intervention relationship distress ($M = 1.78$) than control condition ($M = 2.09$). Finally, There was a non-significant interaction effect of intervention condition x time on optimism, $F(1, 147) = .07, n.s.$, and attachment anxiety ratings, $F(1, 147) = .63, n.s.$

To test our secondary hypotheses, we conducted two hierarchical linear regressions to test for statistical mediation using Model 4 and Model 6 of PROCESS via

the bootstrapping method (Hayes, 2012). Mediation analysis estimates the indirect effect of the independent variable (X) on the dependent variable (Y) through the mediators (Ms). 95% Confidence interval (CI) and point estimate are assessed using bootstrapping. CI's that do not include 0 would signal a significant point estimate at $p < .05$. It is important to note here that since we only were able to collect data at two-time points (pre and post), these analyses are only statistical mediations.

The literature suggests that changes in positive affect is the most proximal intrapersonal outcome of savoring. Therefore, we hypothesize that any effect of savoring on other intrapersonal variables, such as optimism, would be actualized through this mechanism. Table 5 presents the hierarchical linear regression results testing the hypothesis that positive affect mediates the association between intervention conditions and optimism. We found that intervention condition was a significant predictor of positive affect, $B = 7.55$, $SE = 1.58$, $p < .001$, and that positive affect was a significant predictor of optimism, $B = .115$, $SE = .041$, $p < .01$ (See Table 5). These results support the mediation hypothesis. Consistent with full mediation, intervention condition was no longer a significant predictor of optimism after controlling for the mediator (i.e., positive affect), $B = 1.12$, $SE = .85$, n.s. Results indicate a significant indirect effect of intervention condition on optimism through positive affect, $ab = .87$, Biases Corrected and Accelerated (BCA) CI [.02, .18]. The mediator could account for roughly 44% of the total effect, $PM = .44$.

We then proceeded to explore if both intrapersonal variables account for the effect of intervention conditions on the theoretically more distal interpersonal variable relationship distress. We conducted a hierarchical linear regression to test for a double

mediation model using Model 7 of the PROCESS macro (see Table 5). We entered intervention condition as the predictor (X), relationship distress as the outcome variable (Y), positive affect as the first mediator (M1), and optimism as the second mediator (M2). The order of our mediators was determined by the previous mediation which suggested that positive affect is an upstream variable relative to optimism, and thus should be placed before optimism in the model.

We found that intervention condition was a significant predictor of positive affect $B = 7.5$, $SE = 1.58$, $p < .001$, positive affect was a significant predictor of optimism $B = 1.15$, $SE = .41$, $p < .01$, and optimism was a significant predictor of relationship distress $B = -.13$, $SE = .03$, $p < .001$ (See Table 5). After controlling for the mediator positive affect, intervention conditions were no longer a significant predictor of optimism $B = 1.12$, $SE = .85$, n.s. After controlling for the mediator optimism, positive affect was no longer a significant predictor of relationship distress, $B = -.02$, $SE = .02$, n.s. Consistent with full mediation, after controlling for both mediators, intervention condition was no longer a significant predictor of relationship distress, $B = .11$, $SE = .35$, n.s. The results indicate a significant indirect effect of intervention conditions on relationship distress through positive affect and optimism, $ab = -.43$, BCA CI $[-.06, -.01]$. The mediator could account for roughly 35% of the total effect, $PM = .35$ (see Figure 1).

Discussion

The high demand, low supply, and high cost of traditional mental health services for couples mean that a large portion of couples in need can't access these resources. The savoring intervention we propose here has several qualities that makes it ideal for filling this need. Its ability to be administered by paraprofessionals would reduce the cost and increase the supply of couple's mental health resources. Its brevity also makes it easier and more versatile to utilize as a treatment tool. The primary aims of this study is to provide empirical support for both the efficacy of the savoring intervention as well as for furthering the field's understanding of the mechanisms behind it.

Our findings partially supported our primary hypotheses. We did not discover any significant differences in post-intervention outcomes between participants assigned to personal and those assigned to relational savoring conditions. This is surprising due to findings from other studies on relational savoring (e.g., Borelli et al., 2014) that indicated relational savoring to be more efficacious at improving interpersonal outcomes.

Anecdotally, research assistants who carried out the interventions unanimously reported observably more intense and frequent displays of positive emotions (i.e. more smiles, more expressions of joy and happiness) for the relational savoring group as compared to the personal savoring group. However, this difference in expressed affect was not able to be captured by the measures we included in the study. One possible explanation could be the brevity of our intervention did not allow the differential effects of these two types of

savoring tasks to emerge. Alternatively, perhaps the differential effects are time limited. Future work should include repeated intervention sessions as well as more immediate and more numerous measures of outcomes throughout the process of the task and beyond.

After we collapsed the two savoring conditions into a single savoring condition, we found that after controlling for baseline positive affect and savoring beliefs, individuals assigned to the savoring condition reported greater post-intervention positive affect than those assigned to the mindfulness control condition. This is consistent with past findings on the capacity of savoring to improve positive affect. The results also indicated that individuals in the savoring condition reported lower levels of post-intervention relationship distress when compared to the control condition. This finding provides preliminary evidence of savoring's effect on interpersonal variables related to couple functioning. Asking individuals to attend to a positive memory, regardless of if it is personal or relational can, at least temporarily, improve their perception of their relationship functioning. This finding adds to the body of work that support the efficacy of savoring as an intervention tool above and beyond the effect of mindfulness. This evidence is also consistent with previous work on married couples in that it suggests brief interventions can be efficacious in a couple's context (Finkel et al., 2013). While dosing effect of savoring as an intervention has not been empirically explored, it might not be overtly optimistic to assume that repeated sessions of savoring could lead to great improvement in both the intrapersonal and the interpersonal domain. Future work should allow for more assessment periods to measure the longevity as well as the trajectory of change of these effects.

A related construct to savoring is capitalization. Coined by Langston (1994), capitalization is defined as the process of sharing a positive personal experience with a close other. It has also been found to be associated with intra and interpersonal benefits (Cable et al., 2012; Cable et al., 2004). It seems likely that savoring is a component of capitalization. The process of retrieving and organizing a positive memory, in preparation for sharing it, fits the definition of savoring. The key difference between the two constructs seems to be that savoring does not necessitate sharing with a close other or even sharing at all. The process of savoring can take the form of journaling or private reflections. It would be meaningful for future investigations to examine if sharing positive memories with a close other has benefits above and beyond savoring alone.

It is important to note that not all of our primary hypotheses were supported. There were no significant differences in post-intervention optimism between participants assigned to the savoring condition and the control condition. This finding is especially surprising given the significant correlation between post-intervention positive affect and optimism as well as past research demonstrating a strong association between savoring and optimism (Bryant, 2004). One possible explanation is that optimism, being a more global construct, could be a downstream variable to positive affect. Perhaps more power or more intervention sessions would allow us to observe the effect of savoring on optimism more clearly.

We also found no significant difference in post-intervention attachment anxiety between participants assigned to the savoring condition and the control condition. Perhaps attachment style as a construct is too trait-like and stable to be affected by a 10-minute long intervention. Attachment style consists of the sum of all of our interpersonal

experiences as well as our intrapersonal narrative regarding those experiences. Perhaps thinking about a single memory briefly would be akin to activating a drop of water in an ocean of memories. Therefore, we excluded attachment anxiety from all further analyses. These nulls finding do however, increases our confidence in the validity of our study design. They indicate that participants were not merely giving higher ratings to all scales post-intervention simply due to an elevated mood.

To test our secondary hypotheses that the association between savoring and perceived interpersonal functioning is mediated by intrapersonal variables, we ran a double mediation analyses using positive affect as mediator one and optimism as mediator two. While the analysis was a statistic mediation only, we did find both mediators to be significant. Positive affect successfully mediated the association between savoring and optimism. Optimism then successfully mediated the association between positive affect and relationship distress. Overall, we found that the effect of savoring on relationship distress is partially mediated through a mediation path that includes positive affect then optimism. These findings, although preliminary, suggest that savoring's ability to impact interpersonal variable is partially due to its effect on intrapersonal variables. Among the intrapersonal variables affected by savoring, positive affect is an upstream outcome, followed by optimism which is more downstream outcome. These findings are consistent with the broaden-and-build theory of positive emotions (Fredrickson, 2001). An increase in positive affect appears to have led to a more positive broader worldview on both the self (i.e., optimism) as well as the relationship (i.e., relationship distress).

The current study constitutes one of the few experimental investigations of savoring. It is also the first to examine savoring in a romantic relationship context where the couples did not face any immediate relationship stressor such as long distance (Borelli et al., 2014) or deployment (Borelli et al., 2015). Moreover, it is one of the first studies to explicitly examine the mechanisms of savoring. Our study improves on previous work in three different ways. First the larger sample size allowed us the statistical power to detect main effects of savoring as well as conduct mechanistic analyses. Secondly, the in-person administration of the intervention by trained research assistants allow us more confidence in the adherence to the intervention. Lastly, the inclusion of a population not facing stressors allow us to examine the ability of savoring to improve functioning above and beyond the baseline without the interaction of acute or chronic stressors.

The contributions of this study should be balanced against its limitations. The most significant limitation is the number of assessment periods. Not only did this limit our ability to determine the trajectory of change as well as the longevity of the effect on outcome variables, it also prevented us from conducting true mediation analyses. Future research building upon these preliminary findings should include a design capable of addressing this shortcoming. Furthermore, all of our assessments were self-report in nature. It would be advantageous to include behavioral and physiological measures of affect and relationship functioning, such as content analysis of the participant's utterances, coding of facial expressions, and heartrate data. Related to this, like previous work on relational savoring, only a single member of a dyad was recruited for this study. In order to determine the potential of savoring as a brief couple's intervention, it would

be important to examine the dyadic processes within savoring, and especially within relational savoring using multilevel modeling. Finally, the findings in this study should be interpreted cautiously until replicated.

Conclusions

A brief savoring intervention appears to be able to increase positive affect and decrease perceived relationship distress. In addition, two distinct mediators emerged that suggest the effect of savoring on relationship distress is mediated by positive affect and optimism; furthermore, between the two mediators, positive affect is more proximal while optimism is more distal. Overall our findings indicate that savoring is a promising candidate for a brief intervention for partnered individuals. Future research should examine the longevity of these results.

Table 1. Mean and Standard Deviation of Pre and Post Intervention Central Variables by Condition

Measures	Pre			Post		
	Total N=150	Personal n=50	Relational n=50	Total N=150	Personal n=50	Relational n=50
Savoring beliefs	38.57 (19.01)	39.50 (19.09)	40.97 (15.68)	35.44 (21.58)		
Positive affect	30.16 (8.68)	31.94 (9.55)	29.36 (8.39)	29.49 (7.53)	33.88 (9.73)	25.94 (8.81)
Optimism	13.73 (4.73)	14.06 (5.10)	14.64 (4.36)	12.44 (4.11)	15.70 (5.04)	13.80 (4.63)
Relationship distress	2.14 (1.91)	2.26 (2.13)	2.04 (1.86)	2.89 (1.99)	1.88 (2.09)	2.09 (2.05)
Attachment anxiety	2.39 (1.48)	2.26 (1.35)	2.25 (1.29)	2.39 (1.24)	1.77 (1.13)	2.27 (1.48)

Table 2. Bivariate Correlations Between Central Variables at Pre- and Post-Intervention

	Pre					Post			
	1.Sav. Beliefs	2.Pos. Affect	3.Opt	4.Rel. Distress	5.Att. Anxiety	6.Pos. Affect	7.Opt	8.Rel. Distress	9.Att. Anxiety
1	--								
2	.191**	--							
3	.496*	.236**	--						
4	-.406**	-.190*	-.272**	--					
5	-.330**	-.075	-.291**	.436**	--				
6	.253**	.638**	.283**	-.184*	-.145	--			
7	.500**	.194*	.862**	-.283**	-.240*	.279**	--		
8	-.359**	-.172**	-.276**	.855**	.374**	-.188*	-.330**	--	
9	-.283**	-.104	-.231**	.401**	.795**	-.184**	-.273**	.451**	--

Note. Sav. Beliefs = Savoring beliefs, Pos. Affect = Positive Affect, Opt = Optimism, Rel. Distress = Relationship distress, Att. Anx = Attachment anxiety.

Table 3. ANOVA Summaries for Intervention Conditions (Personal, Relational, Control)

Source	<i>df</i>	F	<i>p</i>	η^2
Dependent Variable: <i>Positive Affect</i>				
Between	2	11.83	.000	.14
Within	147			
Dependent Variable: <i>Optimism</i>				
Between	2	.36	.69	.00
Within	147			
Dependent Variable: Relationship distress				
Between	2	1.82	.17	.02
Within	147			
Dependent Variable: Attachment Anxiety				
Between	2	.15	.86	.00
Within	147			

Table 4. ANOVA Summaries for Intervention Conditions (Savoring, Control) Controlling for Pre-Intervention Savoring Beliefs

Source	<i>df</i>	F	<i>p</i>	η^2
Dependent Variable: <i>Positive Affect</i>				
Between	1	20.98	.00	.13
Within	147			
Dependent Variable: <i>Optimism</i>				
Between	1	.07	.79	.00
Within	147			
Dependent Variable: Relationship Distress				
Between	1	4.01	.05	.03
Within	147			
Dependent Variable: Attachment Anxiety				
Between	1	.64	.43	.00
Within	147			

Table 5. *Double Mediation Model with Positive Affect and Optimism Mediating the Association Between Intervention Conditions and Relationship Distress*

Path/effect	Bootstrap Estimates		95% Confidence interval		R ²	F
	B	SE	Lower Limit CI	Upper Limit CI		
a1 (X→M1)	7.5***	1.56	4.4	10.61	.13	23.01
a2 (X→M2)	1.12	.89	-.63	2.87	.09	6.46
a3 (M1→M2)	1.2*	.04	.02	.21		
c' (X→Y)	.11	.39	-.65	.87	.12	6.92
b1(M1→Y)	-.02	.02	-.06	.01		
b2 (M2→Y)	-.13***	.03	-.19	-.06		
c (X→Y)	-.32	.35	-1.01	.38	.08	.80
D21(X→M1→ M2→Y)	-.11	.06	-.26	-.03		

Note. N = 150. X = Intervention condition, M1 = Positive affect, M2 = Optimism, Y = Relationship distress. * p < .05, ** p < .01, *** p < .001

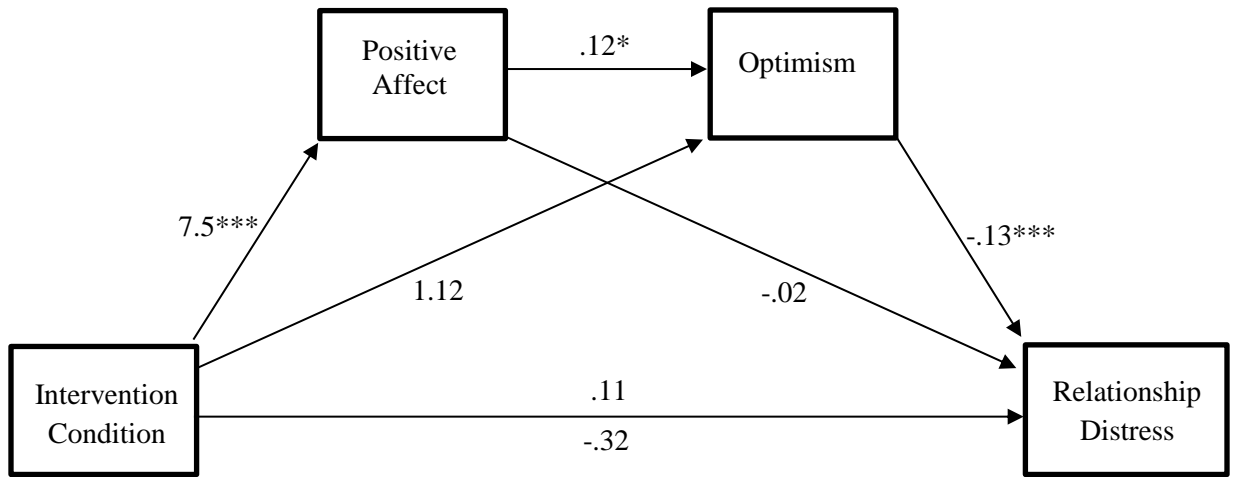


Figure 1. Double mediation model with Positive Affect and Optimism as mediators for the association between intervention conditions and Relationship Distress.

Appendix A

Intervention Tasks Prompts (adapted from Borelli, McMakin & Sbarra, 2010)

Mindfulness Control

“For the next few minutes, what we are going to do is to help you really focus on each and every step you take to brush your teeth. You can pick a specific instance to think about, such as this morning or think about your teeth-brushing routine in general. We really want you to slow down and break down the act of brushing your teeth into the individual actions that make it possible. For example, picking up your toothbrush from the toothbrush holder, or turning on the facet to wet the toothbrush, then turning off the facet, etc. We also want you to focus on the sound, smell, sight, taste and other sensations you feel as you brush your teeth”

Personal Savoring

“The goal of this task is to help you focus on a positive, private emotional experience you’ve had recently. What I’d like you to do is to come up with a memory of a recent time when you have felt happy. This should be something you experienced on your own and something you enjoyed but haven’t had time to really think about. The memory should also be something you would like to spend some time thinking about. This can be something as simple as a time when you beat a difficult level in your favorite video game, ate a really delicious meal, or saw a movie that you really enjoyed. It could also be something like a time when you got an award or a recognition, or when you felt really proud of something you had accomplished. The important thing is to come up with a time when had a personal experience that you really enjoyed. During this task I will ask you to focus closely on the positive aspects of the experience”

Relational Savoring

“For the next few minutes, what we are going to do is to help you come up with a memory of a time when you felt especially cherished by, connected to or loved by your current partner. This can be something as simple as a time when you shared a good meal together, watched a movie together while sitting on the couch, or laughed together over a funny joke. It may also be a time when you were really sick and he/she took special, tender care of you, or a time when something upsetting happened to you and talking about it with him/her made you feel a lot better or when maybe a time when you spent a romantic evening together celebrating a major relationship benchmark. The important thing is to come up with a time when being with your partner made you feel really special, or cared for or understood; try to focus especially on the positive aspects of the experience”

References

- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117, 497–529. <https://doi.org/10.1037/0033-2909.117.3.497>
- Basso, M. R., Schefft, B. K., Ris, M. D., & Dember, W. N. (1996). Mood and global-local visual processing. *Journal of the International Neuropsychological Society*, 2(3), 249-255. doi:10.1017/S1355617700001193
- Berger, R., & Hannah, M. T. (Eds.). (1999). Preventive approaches in couples therapy. Philadelphia, PA: Brunner/Mazel.
- Borelli, J. L., McMakin, D., & Sbarra, D. (2010). Mental reflection task manual: Pomona deployment study. Unpublished Manuscript, Pomona College.
- Borelli, J. L., Sbarra, D. A., Snavely, J. E., McMakin, D. L., Coffey, J. K., Ruiz, S. K., & ... Chung, S. Y. (2014). With or without you: Preliminary evidence that attachment avoidance predicts nondeployed spouses' reactions to relationship challenges during deployment. *Professional Psychology: Research And Practice*, 45(6), 478-487. doi:10.1037/a0037780
- Borelli, J. L., Rasmussen, H. F., Burkhart, M. L., & Sbarra, D. A. (2015). Relational savoring in long-distance romantic relationships. *Journal of Social and Personal Relationships*, 32(8), 1083-1108. doi:10.1177/0265407514558960
- Bowlby, J. (1982 [1969]). Attachment and loss: Vol. 1. Attachment (2nd ed.). New York, NY: Basic Books.
- Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, 84(4), 822-848. doi:10.1037/0022-3514.84.4.822
- Bryant, F. B. (2003). Savoring Beliefs Inventory (SBI): A scale for measuring beliefs about savoring. *Journal of Mental Health*, 12, 175–196. doi:10.1080/0963823031000103489

- Bryant, F. B., & Veroff, J. (2007). *Savoring: A new model of positive experience*. Mahwah, NJ: Lawrence Erlbaum.
- Burkhart, M. L., Borelli, J. L., Rasmussen, H. F., & Sbarra, D. A. (2015). Cherish the good times: Relational savoring in parents of infants and toddlers. *Personal Relationships*, 22(4), 692-711. doi:10.1111/pere.12104
- Cohen, S., Underwood, L. G., & Gottlieb, B. H. (Eds.). (2000). *Social support measurement and intervention: A guide for health and social scientists*. New York, NY: Oxford University Press
- Derryberry, D., & Tucker, D. M. (1994). Motivating the focus of attention. In P. M. Neiderthal & S. Kitayama (Eds.), *The heart's eye: Emotional influences in perception and attention* (pp. 167-196). San Diego, CA, US: Academic Press. doi:10.1016/B978-0-12-410560-7.50014-4
- Epstein, N. B., & Baucom, D. H. (2002). *Enhanced cognitive-behavioral therapy for couples: A contextual approach*. Washington, DC: American Psychological Association. doi:10.1037/10481-000
- Fielder, R. L., Walsh, Jennifer, L., Carey, K. B., & Carey, M. P. (2014). Sexual hookups and adverse health outcomes: A longitudinal study of first-year college students. *Journal of Sex Research*, 51(2), 131–144. doi:10.1080=00224499.2013.848255
- Finkel, E. J., Slotter, E. B., Luchies, L. B., Walton, G. M., & Gross, J. J. (2013). A brief intervention to promote conflict reappraisal preserves marital quality over time. *Psychological Science*, 24, 1595–1601. doi:10.1177/0956797612474938
- Franca, R. D. (2015). A meta-analysis of mindfulness based interventions (MBIs) show that MBIs are effective in reducing acute symptoms of depression but not anxiety. *Australian Occupational Therapy Journal*, 62(2), 147-148. doi:10.1111/1440-1630.12198
- Fraley, R., Heffernan, M., Vicary, A., & Brumbaugh, C. (2011). The Experiences in Close Relationships-Relationship Structures questionnaire: A method for assessing attachment orientations across relationships. *Psychological Assessment*, 23, 615-625.
- Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist*, 56, 218-226.
- Gable, S. L., Gosnell, C. L., Maisel, N. C., & Strachman, A. (2012). Safely testing the alarm: Close others' responses to personal positive events. *Journal of Personality and Social Psychology*, 103, 963-981. doi:10.1037/a0029488

- Gable, S. L., Reis, H. T., Impett, E. A., & Asher, E. R. (2004). What do you do when things go right? The intrapersonal and interpersonal benefits of sharing positive events. *Journal of Personality and Social Psychology*, 87, 228-245. doi:10.1037/0022-3514.87.2.228
- Gentzler, A. L., Morey, J. N., Palmer, C. A., & Yi, C. Y. (2013). Young adolescents' responses to positive events: Associations with positive affect and adjustment. *The Journal of Early Adolescence*, 33(5), 663-683. doi:10.1177/0272431612462629
- Halford, W. K., O'Donnell, C., Lizzio, A., & Wilson, K. (2006). Do couples at high risk of relationship problems attend premarriage education? *Journal of Family Psychology*, 20, 160–163. doi:10.1037/0893-3200.20.1.160
- Hurley, D. B., & Kwon, P. (2011). Results of a study to increase savoring the moment: Differential impact on positive and negative outcomes. *Journal of Happiness Studies*, 13, 579–588. doi:10.1007/s10902-011-9280-8
- Jacobson, N. S., & Christensen, A. (1998). Acceptance and change in couple therapy: A therapist's guide to transforming relationships. New York, NY: Norton.
- Jacobson, N. S., & Margolin, G. (1979). Marital therapy: Strategies based on social learning and behavior exchange principles. New York, NY: Brunner/Mazel.
- Johnson, D. J., & Rusbult, C. E. (1989). Resisting temptation: Devaluation of alternative partners as a mean of maintaining commitment in close relationships. *Interpersonal Relations and Group Processes*, 57(6), 967-980
- Khoury, B., Sharma, M., Rush, S. E., & Fournier, C. (2015). Mindfulness-based stress reduction for healthy individuals: A meta-analysis. *Journal Of Psychosomatic Research*, 78(6), 519-528. doi:10.1016/j.jpsychores.2015.03.009
- Kiken, L. G., Lundberg, K. B., & Fredrickson, B. L. (2017). Being present and enjoying it: Dispositional mindfulness and savoring the moment are distinct, interactive predictors of positive emotions and psychological health. *Mindfulness*, 8(5), 1280-1290. doi:10.1007/s12671-017-0704-3
- Langston, C. A. (1994). Capitalizing on and coping with daily-life events: Expressive responses to positive events. *Journal of Personality and Social Psychology*, 67, 1112–1125. doi:10.1037/0022-3514.67.6.1112

- Liu, H., & Reczek, C. (2012). Cohabitation and U.S. adult mortality: An examination by gender and race. *Journal of Marriage and Family*, 74, 794 – 811. doi:10.1111/j.1741-3737.2012.00983.x
- Markman, H. J., Stanley, S. M., & Blumberg, S. L. (2001). *Fighting for your marriage*. San Francisco, CA: Jossey-Bass
- Patrick, H., Knee, C. R., Canevello, A., & Lonsbary, C. (2007). The role of need fulfillment in relationship functioning and well-being: A self-determination theory perspective. *Journal of Personality and Social Psychology*, 92, 434–457.
- Peterson, C. (2000). The future of optimism. *American Psychologist*, 55, 44-55.
- Quoidbach, J., Wood, A. M., & Hansenne, M. (2009). Back to the future: The effect of daily practice of mental time travel into the future on happiness and anxiety. *The Journal of Positive Psychology*, 4, 349–355. doi:10.1080/17439760902992365
- Robles, T. F., Slatcher, R. B., Trombello, J. M., & McGinn, M. M. (2014). Marital quality and health: A meta-analytic review. *Psychological Bulletin*, 140, 140–187. <https://doi.org/10.1037/a0031859>
- Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): a reevaluation of the Life Orientation Test. *Journal of Personality and Social Psychology*, 67(6), 1063–1078
- Simon, R. W. (2002). Revisiting the relationships among gender, marital status, and mental health. *AJS: American Journal of Sociology*, 107, 1065– 1096. <http://dx.doi.org/10.1086/339225>
- Smith, J. L., & Bryant, F. B. (2016). The benefits of savoring life: Savoring as a moderator of the relationship between health and life satisfaction in older adults. *The International Journal Of Aging & Human Development*, 84(1), 3-23. doi:10.1177/0091415016669146
- Smith, J. L., Harrison, P. R., Kurtz, J. L., & Bryant, F. B. (2014). Nurturing the capacity to savor: Interventions to enhance the enjoyment of positive experiences. In A. C. Parks, S. M. Schueller, A. C. Parks, S. O. Schueller (Eds.), *The Wiley Blackwell handbook of positive psychological interventions* (pp. 42-65). Wiley-Blackwell. doi:10.1002/9781118315927.ch3
- Swindle, R., Jr., Heller, K., Pescosolido, B., & Kikuzawa, S. (2000). Responses to nervous breakdowns in America over a 40-year period: Mental health policy implications. *American Psychologist*, 55, 740–749. 10.1037/0003-066X.55.7.740

- U. S. Bureau of Labor Statistics. (2016). *Occupation Employment and Wages May 2016*. Washington, DC: Author.
- U. S. Health Resources and Services Administration. (2017). *Designated Health Professional Shortage Areas Statistics: First Quarter of Fiscal Year 2018 Designated HPSA Quarterly Summary*. Washington, DC: Author.
- Vrangalova, Z. (2015). Hooking up and psychological well-being in college students: Short-term prospective links across different hookup definitions. *Journal of Sex Research*, 52(5), 485-498. doi:10.1080/00224499.2014.910745
- Whisman, M. A. (2007). Marital distress and DSM–IV psychiatric disorders in a population-based national survey. *Journal of Abnormal Psychology*, 116, 638 – 643. doi:10.1037/0021-843X.116.3.638
- Whisman, M. A., Snyder, D. K., & Beach, S. H. (2009). Screening for marital and relationship discord. *Journal Of Family Psychology*, 23(2), 247-254. doi:10.1037/a0014476
- Yucel, D., & Gassanov, M. A. (2010). Exploring actor and partner correlates of sexual satisfaction among married couples. *Social Science Research*, 39(5), 725-738. doi:10.1016/j.ssresearch.2009.09.002